ABSTRACT

A packet flow control mechanism for a frame engine of a packet switch has a reduced complexity set of 'nominal' data flow path-based virtual functions, that process a packet based upon the state of the individual port. Code for the virtual function set can be installed in the instruction cache, by taking advantage of the fact that, once it has reached its steady state operation, the switch's frame engine can be expected to route packets over the nominal data flow path, with no conditional branching or function replacement. The actual function to which a respective virtual function points are dependent upon the signaling state and the level of congestion. For conditional branches, the frame engine may reference auxiliary memory, which stores a conditional state-based processing routine for handling exceptions to the nominal case.